

Amendment Under 37 C.F.R. 1.111
U.S. Application No.: 09/497,513
Attorney Docket No.: Q57824

REMARKS

Claims 3-5 and 8-10 are all the claims pending in the application. By this Amendment, Applicant adds claims 11-13.

The Examiner withdrew the finality of the previous office action and applied new art in rejecting the pending claims.

Specifically, claims 3, 4, 8, and 9, stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,233,459 to Sullivan et al. (hereinafter "Sullivan") in view of U.S. Patent No. 5,710,977 to Nakazawa (hereinafter "Nakazawa"), U.S. Patent No. 5,910,948 to Shou et al. (hereinafter "Shou"), and U.S. Patent No. 5,826,170 to Hirschfield et al. ("Hirschfield"). Claims 5 and 10 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Sullivan in view of Nakazawa and Shou, and further in view of U.S. Patent No. 5,963,586 to Durrant et al. (hereinafter "Durrant"). Applicant respectfully traverses these rejections and respectfully requests the Examiner to reconsider in view of the following comments.

Rejections in view of Sullivan, Nakazawa, Shou and Hirschfield

The Examiner rejected claims 3, 4, 8 and 9 as being unpatentable over Sullivan in view of Nakazawa, Shou and Hirschfield. Specifically, the Examiner asserts that Sullivan teaches an antenna, receiving portion and a signal-processing portion (except for fading means) as set forth in claim 3. Moreover, the Examiner asserts that Nakazawa teaches a frequency shift portion and a combining portion and that Shou teaches fading compensation means as set forth in claim 3. The Examiner also asserts that Hirschfield teaches amplifier, oscillator and mixer of the

frequency shift portion as set forth in claim 3. Finally, the Examiner asserts that there is motivation for combining these four references. That is, there is motivation to combine Sullivan and Nakazawa to prevent frequency overlap and to combine Shou and Sullivan to compensate for signal interference. Hirschfield is further used to show that the composition of the frequency shift portion, as set forth in the original and now amended claim 3, is well known in the art. Applicant respectfully disagrees with the Examiner.

Applicant will first address this rejection with respect to elements present in the independent claim 11. Applicant has carefully studied these four references, which do not teach or suggest a receiver, which converts the combining signal in frequency to make an intermediate signal as set forth in claim 11. In addition, there is no motivation for combining all four references.

First, Applicant respectfully addresses deficient teachings of the references. To begin, independent claim 11 recites: “*the receiver converts the combined signal to make an intermediate frequency signal...*” The Examiner asserts that Sullivan teaches the receiving portion as set forth in claim 3, which is somewhat similar to a receiver as set forth in claim 11 (see page 2 of the Office Action).

Sullivan teaches means in a base station and a method for identifying a location (geo-locator) of a remote transceiver, e.g. MS (*see* Abstract). Specifically, Sullivan’s geo-locator has a number of receiving portions 51a-n each receiving a signal associated with antennas 52a-n (col. 4, lines 9-12). Next, the received signal is converted in a down converter 55a-n. Moreover, the

signal is then changed to digital in A/D converters 56a-n and finally, again converted through digital down converters 57a-n. Then the signal goes to Digital Signal Processor (DSP) 120 where it is despread and the direction is calculated (Fig. 1; col. 5, lines 1 to 20).

Thus, Sullivan teaches having a plurality of receiving portions 51a-n converting a plurality of signals and a plurality of analog to digital converters. Each receiving unit converts a signal received from an antenna but not a combined signal. In other words, Sullivan fails to teach or suggest a receiver that converts a combined signal.

Nazakawa fails to cure the deficient teachings of Sullivan. Nakazawa teaches an apparatus and a method for simultaneously measuring multipath propagation characteristics relative to a plurality of propagation path systems (col. 1, lines 1 to 14). Nakazawa, similar to Sullivan and the prior art discussed in the background section of the specification, teaches having a plurality of receiving units where each receiving unit receives one non-combined signal from the antenna. Nakazawa teaches a plurality of receiving units 35a-35m each having means for converting one received signal into IF. In Nakazawa, the signals are combined for processing, after they are received and converted to IF. In short, Nakazawa fails to teach or suggest having a receiver, which converts to IF a combined signal, thereby reducing the size and cost of the base station.

Finally, neither Shou nor Hirschfield cure the deficiency of the above references. Shou teaches that when signals are received through a plurality of routes, multipath fading is generated by the received signals interfering with one another (col. 9, lines 17 to 26). Thereby, the signals

Amendment Under 37 C.F.R. 1.111
U.S. Application No.: 09/497,513
Attorney Docket No.: Q57824

are despreaded and then RAKE processing is performed (col. 9, line 23 to 30). Hirschfield teaches regulating the power supply of the signal transmitter based on user demand (*Abstract*).

In addition, there is no motivation for combining these four references. The Examiner asserts that there is motivation to combine Sullivan and Nakazawa to prevent frequency overlap and to combine Shou and Sullivan to compensate for signal interference. Hirschfield is further used to show that the composition of the frequency shift portion is well known in the art (see pages 4-6 of the Final Office Action dated June 10, 2003).

However, “obviousness cannot be established by combing the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the combination” In re Geiger, 2 U.S.P.Q.2d 1276, 1278 (Fed. Cir. 1987) (citing ACS Hosp. Sys. v. Montefiore Hosp., 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984).

Although a reference need not expressly teach that the disclosure contained therein should be combined with another, the showing of combinability, in whatever form, must nevertheless be “clear and particular.” Winner International Royalty Corporation v. Ching-Rong Wang, 202 F.3d 1340, 1348, 53 USPQ2d 1580, 1586-87 (Fed. Cir. 2000). Conclusory statements such as common knowledge to one skilled in the art or common sense do not fulfill the agency’s obligation. In re Sang Su Lee, 277 F.3d 1338, 1345 - 46, 61 U.S.P.Q.2d 1430, 1438 (2002).

Most if not all inventions arise from a combination of old elements. In re Kotzab, 55 U.S.P.Q.2d at 1316 (citing In re Rouffet, 149 F.3d 1350, 1357, 47 U.S.P.Q.2d 1453, 1457 (Fed.

Amendment Under 37 C.F.R. 1.111
U.S. Application No.: 09/497,513
Attorney Docket No.: Q57824

Cir. 1998), emphasis added. *Thus, every element of a claimed invention may often be found in the prior art. Id.*, emphasis added. *However, identification in the prior art of each individual part claimed is insufficient to defeat patentability of the whole claimed invention. Id.*, emphasis added. Rather, to establish obviousness based on a combination of the elements disclosed in the prior art, there must be some motivation, **suggestion or teaching of the desirability of making the specific combination that was made by the applicant.** *Id.* at 1316; In re Gordon, 733 F.2d 900, 902, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984).

Sullivan teaches a conventional geo-locator, where each signal is analyzed separately. Nakazawa teaches an apparatus and a method for simultaneously measuring multipath propagation characteristics relative to a plurality of propagation path systems (col. 1, lines 1 to 14). In other words, Nakazawa teaches combining the signals thereby allowing all these different propagation path systems to be analyzed simultaneously. That is, Nakazawa suggests combining signals for simultaneous processing and combining them in a way that the frequencies do not overlap each other. In addition, Nakazawa mentions that the multipath propagation characteristics measured by this system can be used in attempts to locate the base station in the appropriate positions, prevent signals from interfering with each other in the same frequency band, etc. (col. 1, lines 55 to 65).

In short, Nakazawa teaches combining the signal for simultaneous processing; as such there is no point of combining the signals (as shown in Nakazawa) and to immediately spread them for demodulation (Sullivan). Nakazawa teaches combining the signals for analysis and provides no motivation to combine them for the type of processing performed by Sullivan's geo-

Amendment Under 37 C.F.R. 1.111
U.S. Application No.: 09/497,513
Attorney Docket No.: Q57824

locator. Moreover, Nakazawa has its own fading means, Shou does not provide the suggestion or motivation for replacing Nakazawa's fading means with Shou's fading means. As such, there is no motivation to combine the three references.

For at least these reasons, therefore, Applicant respectfully submits that an artisan of ordinary skill would not have (and could not have) produced the subject matter of independent claim 11 from the teachings of Sullivan, Nakazawa, Shou and Hirschfield, taken alone or in any conceivable combination. Applicant therefore respectfully requests the Examiner to allow claim 11.

In addition, independent claims 3, 4, 8, 9 and 13 contain features, namely the reception portion converting the combining signal, that is similar to the features argued above with respect to claim 11. Therefore, those arguments are respectfully submitted to apply with equal force here. For at least substantially the same reasons, therefore, Applicant respectfully submits that claims 3, 4, 8, 9 and 13 are patentable over Sullivan in view of Nakazawa, Shou and Hirschfield.

Next, Applicant addresses this rejection with respect to elements present in the independent claim 12. Applicant has carefully studied these four references, which do not teach or suggest a the signal processor, which demodulates the signal shifted in frequency using a spreading code that is compensated for the frequency shift component corresponding to each antenna as set forth in claim 12. In addition, as explained hereinabove, there is no motivation for combining all four references.

To begin, independent claim 12 recites: “*the signal processor demodulates the signal shifted in frequency using a spreading code that is compensated for the frequency shift component corresponding to each of the antennas...*” The Examiner asserts that Sullivan teaches the spreading demodulation means as set forth in claim 3, which is somewhat similar to a signal processor demodulating the signal shifted in frequency as set forth in claim 12 (see page 2 of the Office Action).

Sullivan only teaches a plurality of despreader 110a - d, one despreader is coupled to each receiver for identifying a code of interest in a spread spectrum coded RF signal. The despreader serve to enhance the signal power level from the mobile transceivers of interest so that direction finding techniques may provide accurate signal angle of arrival calculations (col. 4, lines 25 to 50). However, Sullivan fails to teach or suggest demodulating a signal that is shifted in frequency. In addition, Sullivan fails to teach or suggest using spreading code that is compensated for the frequency shift component corresponding to each of the antennas.

Nakazawa fails to cure the deficient teachings of Sullivan. Nakazawa only teaches having a frequency shifter for shifting the received signals in frequency so that they do not overlap with each other; this arrangement creates a spectrum band, which is supplied to the measuring unit 10 (col. 5, 15 to 36). However, Nakazawa reference also fails to teach or suggest demodulating using spreading code that is compensated for the frequency shift, nor does it teach demodulating a signal shifted in frequency.

Amendment Under 37 C.F.R. 1.111
U.S. Application No.: 09/497,513
Attorney Docket No.: Q57824

Finally, neither Shou nor Hirschfield cure the deficiency of the above references. Shou teaches that when signals are received through a plurality of routes, multipath fading is generated by the received signals interfering with one another (col. 9, lines 17 to 26). Thereby, the signals are despreading and then RAKE processing is performed (col. 9, line 23 to 30). Hirschfield teaches regulating the power supply of the signal transmitter based on user demand (*Abstract*).

For at least these reasons, therefore, Applicant respectfully submits that an artisan of ordinary skill would not have (and could not have) produced the subject matter of independent claim 12 from the teachings of Sullivan, Nakazawa, Shou and Hirschfield, taken alone or in any conceivable combination. Applicant therefore respectfully requests the Examiner to allow claim 12.

In addition, independent claims 3, 4, 8, 9 and 13 contain features, namely the demodulation means which demodulate the signal with use of spreading code compensated for the frequency shift component corresponding to each of the antennas, that is similar to the features argued above with respect to claim 12. Therefore, those arguments are respectfully submitted to apply with equal force here. For at least substantially the same reasons, therefore, Applicant respectfully submits that claims 3, 4, 8, 9 and 13 are patentable over Sullivan in view of Nakazawa, Shou and Hirschfield.

Amendment Under 37 C.F.R. 1.111
U.S. Application No.: 09/497,513
Attorney Docket No.: Q57824

Rejections in view of Sullivan, Nakazawa, Shou and Durrant

Claims 5 and 10 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Sullivan in view of Nakazawa and Shou, and further in view of U.S. Patent No. 5,963,586 to Durrant et al. ("Durrant"). Applicant respectfully traverses this rejection on the following basis.

Independent claims 5 and 10 contain features, namely the reception portion, that are similar to the features argued above with respect to claim 11. Applicant has already demonstrated that Sullivan, Nakazawa and Shou do not meet all the requirements of independent claim 11, those arguments are respectfully submitted to apply with equal force here. Durrant is relied upon only for its teachings of a phase difference. As such Durrant fails to cure the deficient teachings of the other three references. Therefore, for at least these reasons, Applicant believes that claims 5 and 10 are patentable over Sullivan in view of Nakazawa, Shou and Durrant. Applicant respectfully requests the Examiner to reconsider and withdraw this rejection of claims 5 and 10.

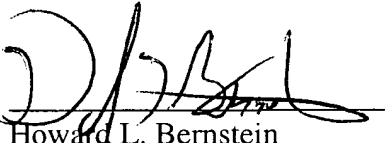
Conclusion and request for telephone interview.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly invited to contact the undersigned attorney at the telephone number listed below.

Amendment Under 37 C.F.R. 1.111
U.S. Application No.: 09/497,513
Attorney Docket No.: Q57824

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,


Howard L. Bernstein
Registration No. 25,665

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE

23373

CUSTOMER NUMBER

Date: December 29, 2003